

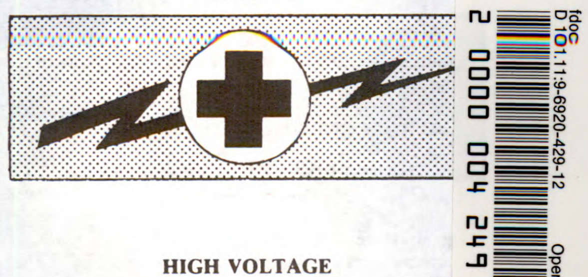
OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL:

TRAINING SET, GUIDED MISSILE SYSTEM M134
NSN 6920-01-024-6948

(STINGER AIR DEFENSE GUIDED MISSILE SYSTEM)

FEBRUARY 1982

WARNING



HIGH VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

a.

WARNING

Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

DANGEROUS HIGH PRESSURE POTENTIAL

High pressure argon gas (up to 6200 psig) is present in the tracking head trainer.

TOXIC MATERIAL

Do not touch the vicinity of the missile IR dome if it shatters, as mercury thallium liquid may be released. This material is toxic to unprotected skin. Avoid all contact with the released material unless protective equipment is being worn such as a respirator, impervious protective gloves, and chemical goggles. If the skin or eyes are exposed to the spilled material, immediately flush with large quantities of water. Any person exposed to the released material should be promptly referred to a physician.

DEATH

Death or severe injury may result if personnel fail to observe safety precautions.

Technical Manual)
)
No. 9-6920-429-12)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., *17 February 1982*

Operator and Organizational Maintenance Manual:

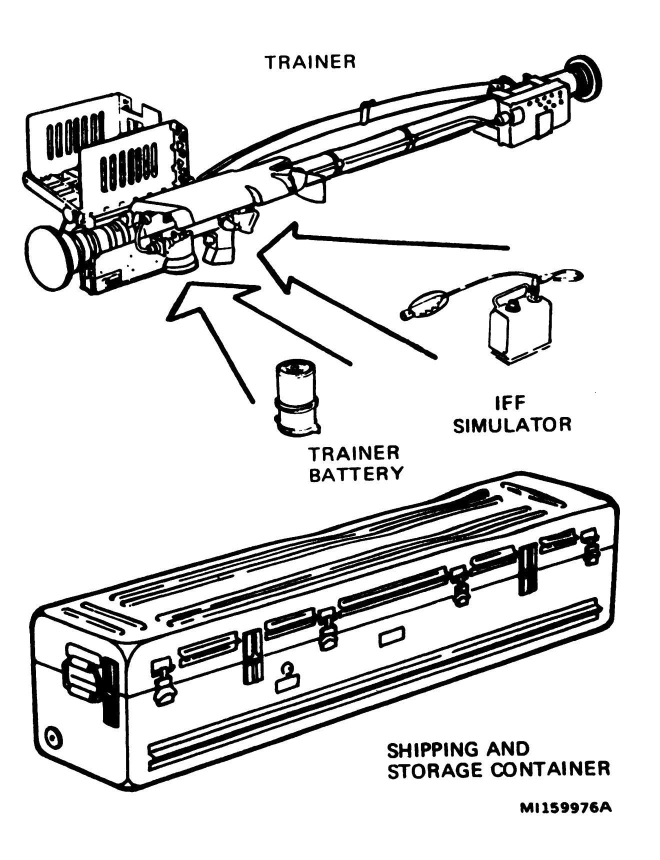
TRAINING SET GUIDED MISSILE SYSTEM M134 (STINGER AIR DEFENSE GUIDED MISSILE SYSTEM)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Equipment Publications and Blank Forms) direct to: Commander, U.S. Army Missile Command, ATTN: DRSMI-SNPM, Redstone Arsenal, Alabama, 35898. A reply will be furnished to you.

TABLE OF CONTENTS

his manual supersedes TM 9-6920-429-12, dated 1 August 1980.


TRAINER
IFF
SIMULATOR
TRAINER
BATTERY
SHIPPING AND
STORAGE CONTAINER
MI159976A

CHAPTER 1

INTRODUCTION

Section 1. GENERAL INFORMATION

1-1. Purpose and Scope

The purpose of this manual is to assist you in operating and maintaining the training set.

1-2. Safety Precautions

Safety is extremely important. High voltage and pressurized gas are used in the operation of the training set. You are responsible for following and enforcing all safety regulations/instructions noted throughout the manual.

1-3. Security Requirements

a. Be security conscious. The trainer is classified CONFIDENTIAL for storage, handling, and shipping. When assigned to you, the security of the trainer is your responsibility. When you are not using the trainer, insure that it is protected against unauthorized access, theft, or sabotage.

b. In the event of loss, theft, or unauthorized access, you must notify your local commander immediately in order that appropriate law enforcement agencies are properly advised, and that actions prescribed in AR 210-10, AR 310-84, and AR-380-5 are initiated.

1-4. Maintenance Forms and Records

Maintenance forms and records that you are required to use are explained in TM 38-750. Table 1-1 lists the Army Maintenance Management System (TAMMS) forms recommended for use with each tactical equipment end item.

1-5. EIR Reporting

If your training set needs improvement, let us know. Send us an EIR. You the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, U.S. Army Missile Command; ATTN: DRSMI-SNEM, Redstone Arsenal, Alabama 35898. A reply will be furnished to you.

Table 1-1. TAMMS Forms

Equipment	Exchange Tag (DA Form 2402)	Equipment Inspection & Maintenance Worksheet (DA Form 2404)	Maintenance Request (DA Form 2407)	Equipment Control Record (DA Form 2408-9)	Uncorrected Fault Record (DA Form 2408-14)
Tracking Head Trainer Set	X	X	X	X	X

1-6. Abbreviations and Acronyms

Below are listed the abbreviations and acronyms that are used in this document.

ABBREVIATIONS AND ACRONYMS

ACQ	Acquisition
C	Celsius
DC	Direct Current
EL	Elevation
ERR	Error
F	Fahrenheit
Hz	Hertz
GPU	Gas Pumping Unit
IFF	Identification Friend or Foe
INT	Interrogate
IR	Infrared Radiation
LL	Left Lead
LOW V	Low Voltage
PSIG	Pounds per Square Inch Gage
RL	Right Lead
TAMMS	The Army Maintenance Management System
TRK	Track
UNC	Uncage
UNK	Unknown

Section II. DESCRIPTION AND PHYSICAL CHARACTERISTICS

1-7. General

The STINGER training set (fig. 1-1) contains the equipment that you need for training in the operation of the Stinger Guided Missile System missions. The training set (housed in a shipping and storage container) consists of a tracking head trainer, five batteries and an IFF simulator with cable.

1-8. Trainer Description

a. General. The trainer (fig. 1-2) is made up of the launcher assembly, which contains the missile simulator, and the gripstock assembly. You operate the trainer in the same manner as the tactical weapon, except there is no missile launch. The performance indicator assembly indicates results of the engagement sequence. Electrical power to the trainer is provided by the trainer battery. Coolant gas is provided by the argon gas bottle in the missile simulator.

b. Launcher Assembly. In external appearance, the launcher assembly is similar to the weapon-round with the following exceptions: a performance indicator assembly strapped near the rear end of the launch tube, a gas fill port located under the IFF antenna near the front of the launch tube, and a gas pressure gage that you can see through a plastic window at the rear of the launch tube.

(1) The major parts of the missile simulator are the seeker and gas bottle. The seeker functions the same as the tactical missile seeker. The gas bottle contains pressurized argon gas which cools the seeker during each training mission. Under normal conditions, eighty 47-second missions can be completed with a fully charged gas bottle.

(2) Another part of the launcher assembly is the sight assembly, which is attached to the launch tube. You use this to aim the trainer, to estimate target range, to superelevate to the

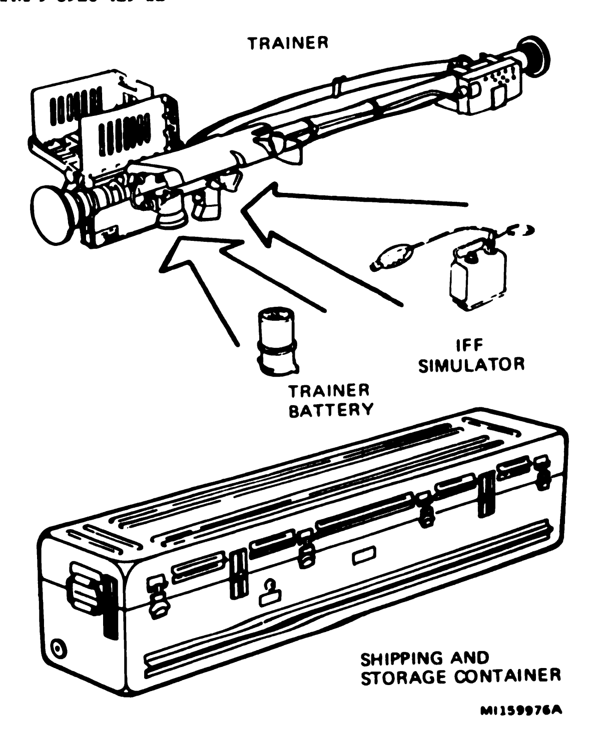


Figure 1-1. Training set.

proper angle, and to correctly lead your target. Two acquisition indicators, mounted on the sight assembly, tell you IFF status and whether the seeker is "locked on" the target. One of these indicators is a tiny speaker that produces various tones. The other

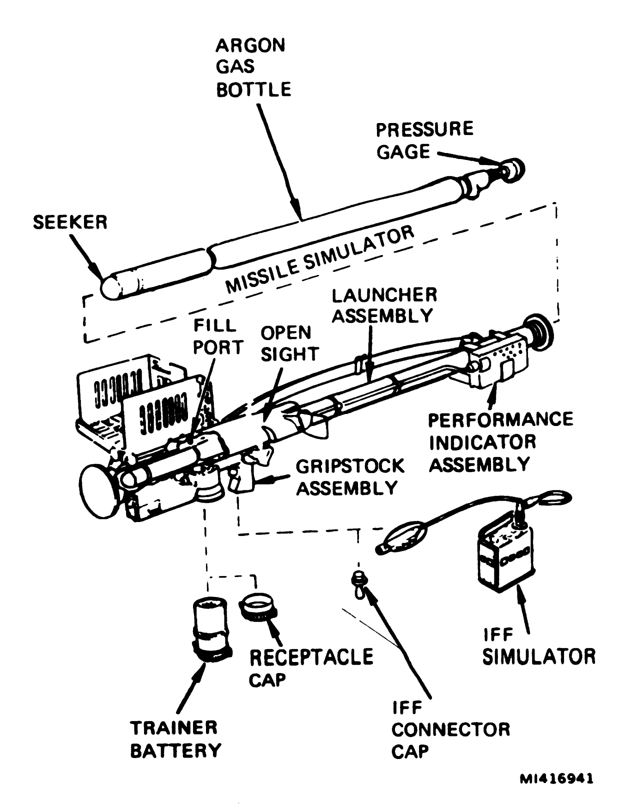


Figure 1-2. Trainer and IFF simulator (Sheet 1 of 2).

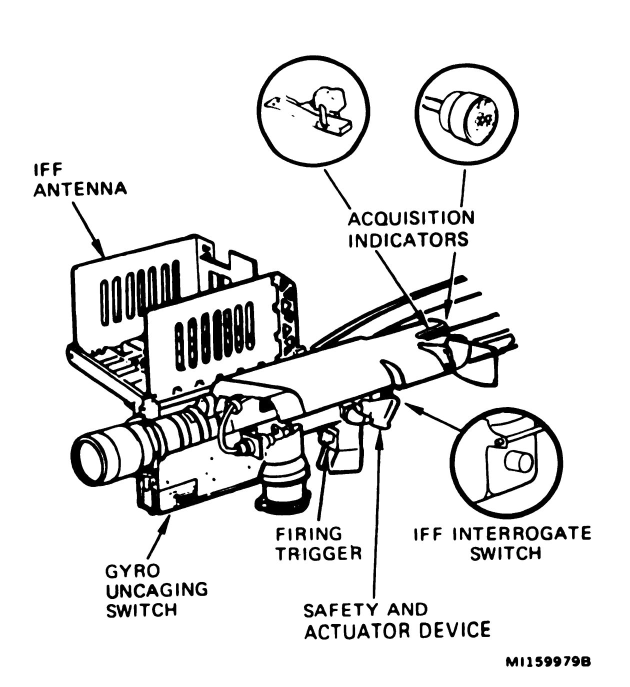


Figure 1-2. Trainer and IFF simulator (Sheet 2 of 2).

indicator vibrates against your cheekbone, transmitting sound vibrations through the bones to the ear.

(3) Another part of the launcher assembly is the performance indicator assembly. This assembly evaluates your performance as you operate the trainer. Each step of the operating procedure is recorded by a white flag in the appropriate indicator window. If you perform the operating procedure correctly and press the firing trigger, you will hear a short "beep" indicating a successful launch. Some operating steps made out of sequence can be corrected before pressing the firing trigger. However, if you press the firing trigger with an error in your sequence, the ERR flag will flip and a warbling sound will be heard. The trainer battery must be removed to stop the tone.

c. Trainer Battery. This battery is a rechargeable unit that provides the electrical power to operate the trainer and IFF simulator. At least sixteen 47-second training missions are possible with a fully charged battery. In external appearance, it is similar to the tactical battery coolant unit (BCU) except that the trainer battery is approximately 3 inches longer and about twice the weight. The trainer battery furnishes electrical power only.

1-9. IFF Simulator Description

The IFF simulator (fig. 1-2) is similar in external appearance to the tactical IFF interrogator. The IFF simulator randomly transmits friendly or unknown replies to you. Electrical power to the simulator is provided by the trainer battery.

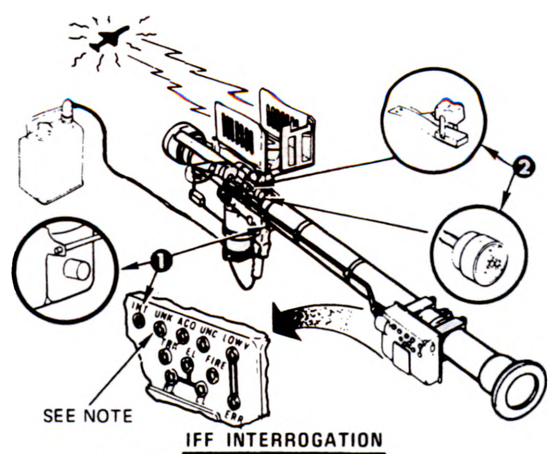
Section III. TECHNICAL PRINCIPLES OF OPERATION

1-10. IFF Simulator

The IFF simulator is connected to the trainer using the interconnecting cable. With the trainer battery in place, the operation of the simulator starts when you press the IFF interrogate switch on the trainer. One of three different replies — mode 4 friend, mode 3 friend, or unknown — each having a different sound is generated in the simulator and sent to the trainer. If an operational error is made and not corrected before the firing trigger is pressed, a warbling error tone is generated by the IFF simulator. A switch is located on the IFF simulator core under the dummy battery and prevents the error tone from being heard when placed in the ERROR TONE OFF position. The ERR flag on the performance indicator assembly will flip white when an error is made in the operating procedure.

1-11. Trainer

Figure 1-3 is an illustration sequence that explains the functional operation of the trainer using the IFF simulator during a typical training mission.



IFF INTERROGATION

❶ **MISSION INITIATED**

Insertion of trainer battery and pressing of IFF interrogate switch activates random generator in IFF simulator. INT indicator flips.

❷ **ONE OF THREE IFF REPLIES IS HEARD FROM ACQUISITION INDICATORS**

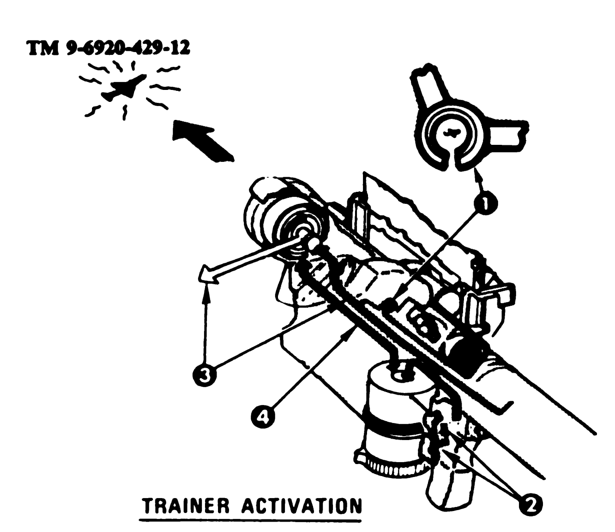
A. "Beep–Quiet–Beep" meaning mode 4 friend
B. "Beeeeeeeeeeep" meaning mode 3 friend
C. "Beep–Beep–Beep– – –" meaning unknown target

NOTE

If the unknown tone is heard, the UNK indicator flips. If either of the two friend tones is heard, the UNK indicator will not flip. If you go on with the firing procedure and pull the firing trigger, the ERR indicator will flip and a warning tone will be heard indicating that you've fired on a friendly target.

MI419036

Figure 1-3. Principles of operation (Sheet 1 of 5).



TRAINER ACTIVATION

1 **TRAINER IS AIMED**

Position trainer so that target image appears in the center of sight range ring.

2 **SAFETY AND ACTUATOR DEVICE OPERATED**

Operating this device energizes trainer electronics and releases argon coolant. The 47-second timer in the trainer starts operating.

3 **GAS COOLANT FLOWS**

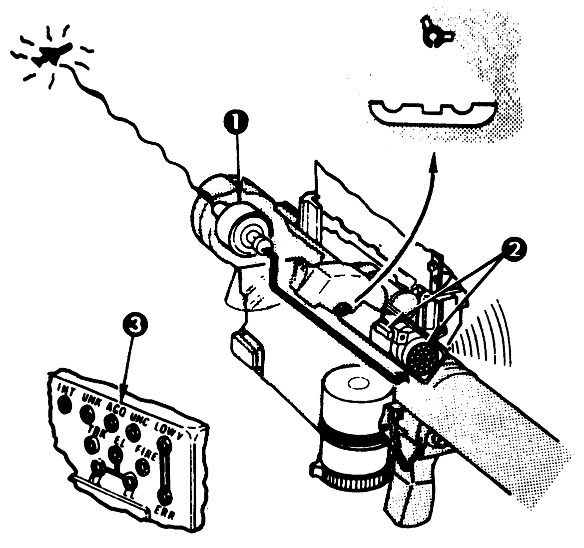
Argon gas cools the seeker within 5 seconds. Gas goes out exhaust valve.

4 **GYRO SPIN MOTOR ENERGIZED**

Gyro spins up to full speed within 5 seconds. Acquisition indicators sound.

MI159982A

Figure 1-3. Principles of operation (sheet 2 of 5).



IR ACQUISITION

❶ **SEEKER SENSES TARGET**

Seeker senses infrared (IR) radiation from the target.

❷ **ACQUISITION INDICATORS**

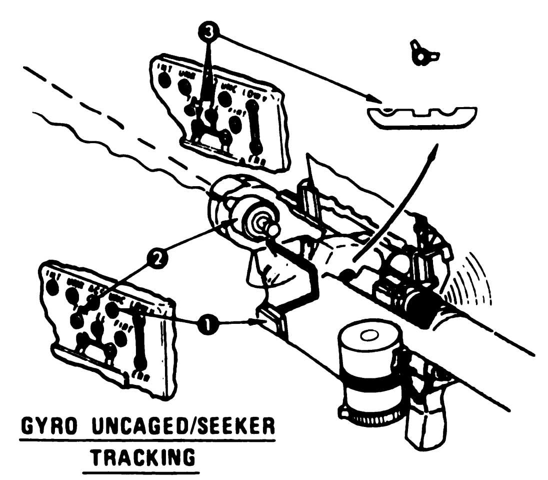
A purer tone indicates that IR radiation is detected from the target and . . . .

❸ **ACQ INDICATOR FLIPS**

When sufficient infrared radiation is received by the seeker.

MI419038

Figure 1-3. Principles of operation (sheet 3 of 5).



GYRO UNCAGED/SEEKER TRACKING

1 **UNCAGING SWITCH OPERATED**

Uncaging switch frees gyro. UNC indicator flips and locks the ACQ indicator as long as the switch is held.

2 **TRACKING**

Seeker tracks target. TRK indicator flips

3 **SUPERELEVATION AND LEAD**

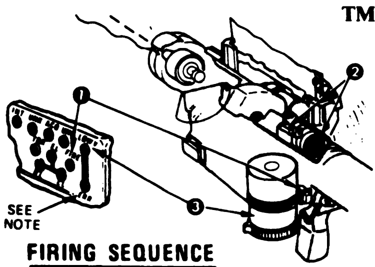
The EL and RL or LL indicators flip.

NOTE

Up to this point, if an out of sequence mistake has been made, the mistake can be corrected by releasing the uncage switch and going back and listening for IR acquisition. Then the gyro uncaged/seeker tracking steps above should be repeated.

MI159984A

Figure 1-3. Principles of operation (sheet 4 of 5).



1 **FIRING TRIGGER PRESSED**

Pressing the firing trigger causes the FIRE indicator to flip. The trigger must be held for at least half a second.

2 **LAUNCH**

After half a second, a short "Beep" on the acquisition indicators indicates launch.

3 **POWER TURN OFF**

Power turn off occurs if:

- Following short "beep" indicating launch, battery is removed.
- 47 seconds after safety and actuator device is operated.
- Battery power is too low.

NOTE

If an out-of-sequence mistake has been made and the firing trigger has been pressed, the ERR indicator will flip and a warbling tone will be heard from the acquisition indicators. Also, the same conditions will result if the firing trigger and uncaging switch have not been pressed for at least half a second. When the ERR indicator flips and warbling tone is heard, this indicates a mistake has been made.

MI419039

Figure 1-3. Principles of operation (sheet 5 of 5).

CHAPTER 2

OPERATING INSTRUCTIONS FOR TRAINING SET

Section I. TRAINER CONTROLS AND INDICATORS

2-1. Controls and Indicators

The controls and indicators for the tracking head trainer and IFF simulator and their respective functions are listed in table 2-1 and shown in figure 2-1.

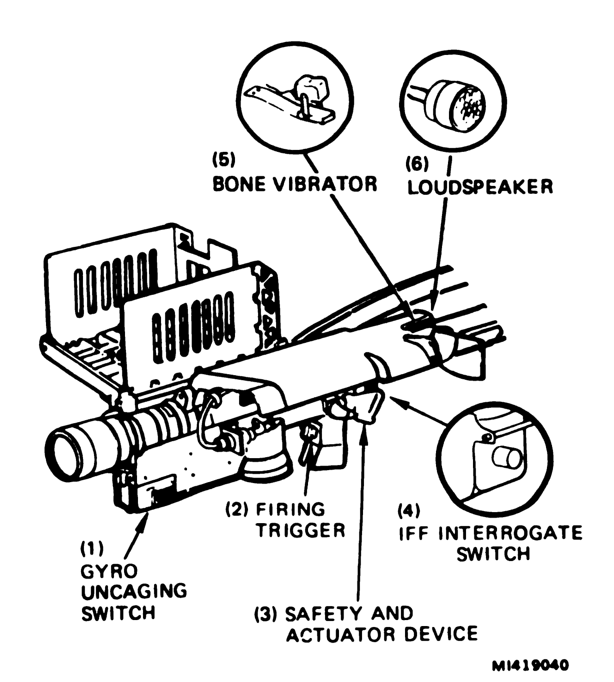


Figure 2-1. Trainer controls and indicators (sheet 1 of 3).

Table 2-1. Controls and Indicators

Fig. 2-1 Key	Control Indicator	Function
1	Gyro uncaging switch	Uncages the gyro allowing seeker to track target.
2	Firing trigger	Simulates firing
3	Safety and Actuator device	Applies battery power to trainer and releases argon coolant to seeker head.
4	IFF Interrogate Switch	Activates IFF simulator.
5	Bone Vibrator	Transmits sound to the operator through cheek bones.
6	Loudspeaker	Emits audible tones during interrogation and after trainer activation.

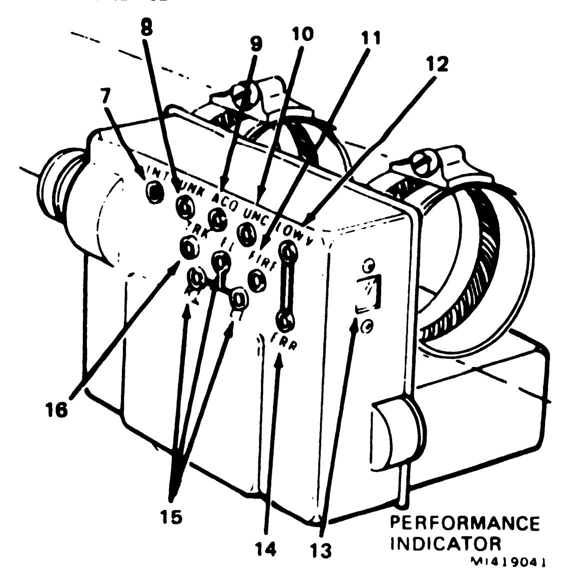


Figure 2-1. Trainer controls and indicators (sheet 2 of 3).

Table 2-1. Controls and Indicators (Continued)

Fig. 2-1 Key	Control/ Indicator	Function
7	INT	Flips white when IFF interrogate pushbutton is pressed.
8	UNK	Flips white after IFF interrogate pushbutton is pressed and IFF response is unknown.

Table 2-1. Controls and Indicators (Continued)

Fig. 2-1 Key	Control/ Indicator	Function
9	ACQ	Flips white when seeker acquires target.
10	UNC	Remains black when uncaging switch is released, and flips white when switch is pressed.
11	FIRE	Flips white when firing trigger is pressed.
12	LOW V	Remains black as long as there is sufficient voltage to operate trainer; otherwise flips white.
13	EVENTS Counter	Counts the number of times the trainer is activated.
14	ERR	Flips white (and error tone is heard) *a.* If you press firing trigger out of sequence; acquisition during tracking, uncaging, or super-elevation. *b.* If you fire on a friendly target after IFF interrogation. *c.* If you hold firing trigger less than one-half second or release uncaging switch.

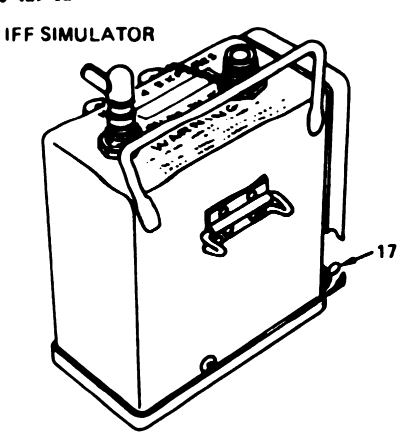


Figure 2-1. Trainer controls and indicators (sheet 3 of 3).

Table 2-1. Controls and Indicators (Continued)

Fig. 2-1 Key	Control/ Indicator	Function
15	LL, RL, EL	Flips white to indicate that left lead or right lead, and superelevation have been applied.
16	TRK	Flips white when target acquisition is obtained and uncaging switch is pressed.
17	ERROR TONE ON/OFF	Shuts off generation of error tone.

Section II. OPERATING PROCEDURES

2-2. Operational Check Procedures

Perform the procedure in table 2-2 to determine if the training set is operable.

Table 2-2. Operational Check Procedure

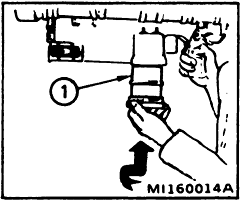
Step	Procedure
1.	Check the pressure gage at the rear of launch tube assembly. Depending on the gage reading for your surrounding temperature, take the action indicated below. X1000 140°F -40°F 0 — 8 NOTE: MEANS GREEN MI160089A GREEN — Trainer is ready for use. YELLOW — Trainer needs refilling. RED — Pressure is too high. Operate safety and actuator device to cycle trainer three times and then wait five minutes. Repeat, if necessary, until pointer is in green area of gage.
2.	Remove and retain the receptacle cap and insert a trainer battery (1). 

Table 2-2. Operational Check Procedure (Continued)

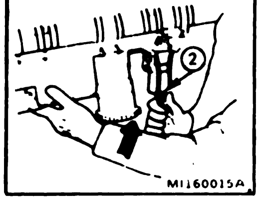
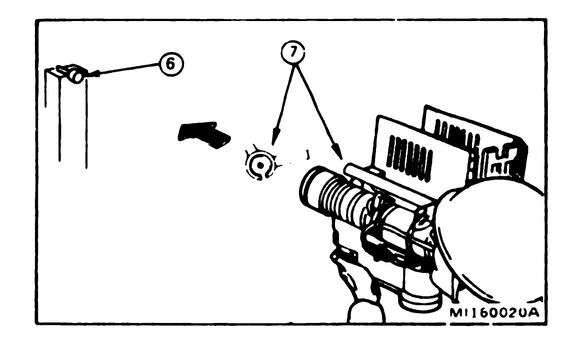
Step	Procedure
	 
3.	Remove the IFF connector cap and connect the IFF simulator with its interconnecting cable (2) to the trainer gripstock receptacle. Retain cap.
4.	Press the IFF interrogate switch (3). You will hear any one of three IFF replies. If no reply is heard, replace the trainer battery. Press the IFF interrogate switch (3). If still no reply, replace IFF simulator. Press the IFF interrogate switch. If still no reply, replace interconnecting cable. Press the IFF interrogate switch again. If no reply is heard, remove the trainer battery and return the training set through normal supply channels.

Table 2-2. Operational Check Procedure (Continued)

Step	Procedure
	MI160017A MI160018A MI160019A
5.	Shoulder the trainer, raise sight assembly, remove front cover, and operate the safety and actuator device (4). LOW V indicator remains black or may flicker from black to white. If the LOW V indicator (5) flips white, the trainer battery is low and needs to be recharged. Replace this battery with a fully charged one and repeat this step.
6.	The gyro spinup noise is heard. If you do not hear the noise, remove and reinsert the trainer battery. Operate the safety and actuator device. If the gyro still does not spin up, return the training set through normal supply channels.

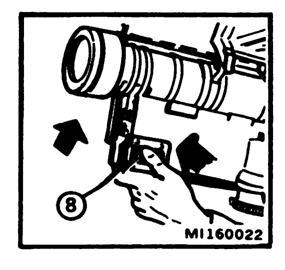
Table 2-2. Operational Check Procedure (Continued)

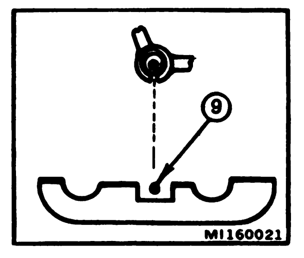


Step	Procedure
7.	After the noise reaches a constant tone, sight on an IR source (6), such as flashlight or light bulb, and center that source in the range ring (7).
8.	A distinct acquisition tone is heard. If you do not hear this tone, remove the trainer battery and return the training set through normal supply channels.

Table 2-2. Operational Check Procedure (Continued)

Step	Procedure

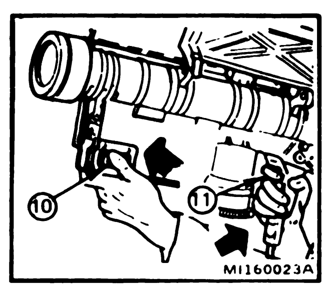


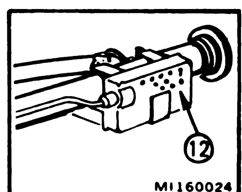


9. Press and hold uncaging switch (8). Superelevate trainer until source is centered in sight (9). A distinct acquisition tone is heard. This indicates that seeker is tracking. If tone is lost, release uncaging switch (8) and try again, repeating steps 7, 8 and 9.

Table 2-2. Operational Check Procedure (Continued)

Step	Procedure





10. When the distinct acquisition tone is heard, release the uncaging switch (10) to introduce an error and pull the firing trigger (11). The ERR (12) indicator flips white and the warbling sound is heard. If warbling tone is not heard, check that ERROR TONE ON/OFF switch is in ON position. If switch is in ON position, remove the trainer battery and replace both battery and trainer in shipping container and return through normal supply channels. If switch is in OFF position, set to ON position and repeat this step.

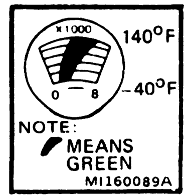
11. Perform post-operating instruction (paragraph 2-5) if training is not to be conducted. If training is to be conducted, proceed with paragraph 2-4.

2-3. Tracking Limitations

For the trainer seeker to acquire a target, you must have the target centered in the sight range ring, and the infrared radiation from the target must be strong enough for the seeker to lock on the target. Refer to applicable FM in Appendix A for range-ring procedure. To allow for gyro spin-up and seeker cooling, you must activate the trainer at least 5 seconds before the missile launch can be simulated effectively.

2-4. Operating Instructions

a. Preparation. Check the pressure gage at the rear of the launch tube assembly. Depending on the gage reading for your surrounding temperature, take the action indicated below:



GREEN — Trainer is ready for use.

YELLOW — Trainer needs refilling.

RED — Pressure is too high. Operate safety and actuator device to cycle trainer three times and then wait five minutes. Repeat, if necessary, until pointer is in green area of gage.

b. Operation. Figure 2-2 illustrates operating procedure for a typical training sequence. If a sequence error occurs, go back to the last properly completed illustration sequence and complete the mission in correct sequence. If the 47-second timer runs down before the mission is completed the trainer will shut off. If you pull the firing trigger out of sequence, an uncorrectable error occurs.

WARNING

- Fully charged batteries must be handled with care. To prevent painful shock, do not touch the contact rings, or permit metal objects or liquids to be placed across contact rings.
- If trainer is dropped, perform preventive maintenance checks in table 3-2. Do not touch the vicinity of the missile IR dome if it shatters, as mercury thallium liquid may be released. This material is toxic to unprotected skin.

NOTE

If (at any time after the safety and actuator device is operated) the LOW V indicator on the performance indicator assembly flips white, replace the trainer battery.

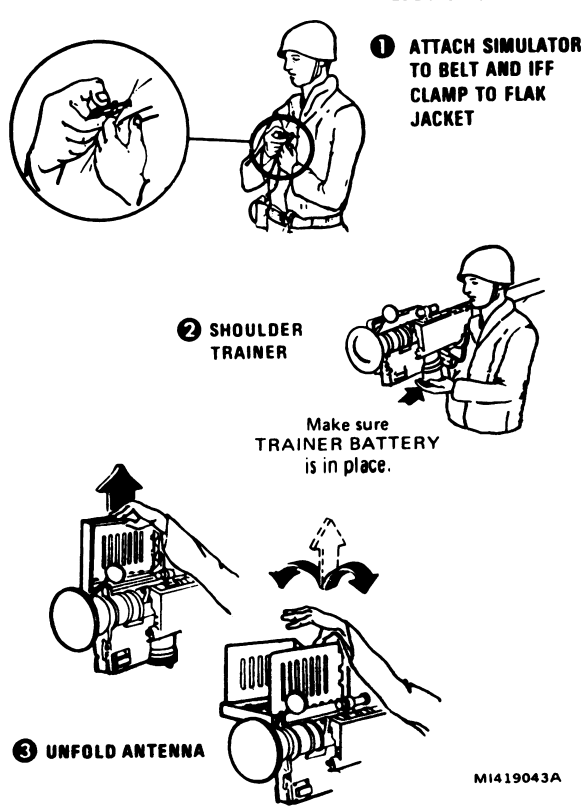


Figure 2-2. Trainer operating instructions (Sheet 1 of 8).

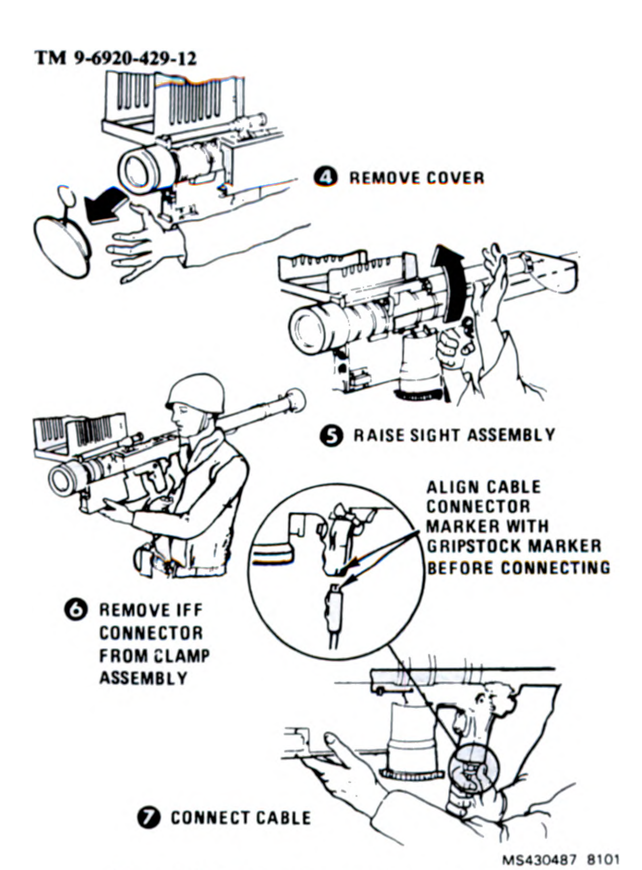
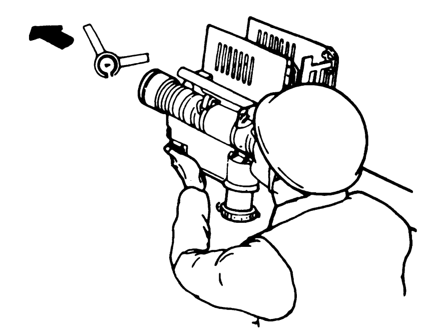
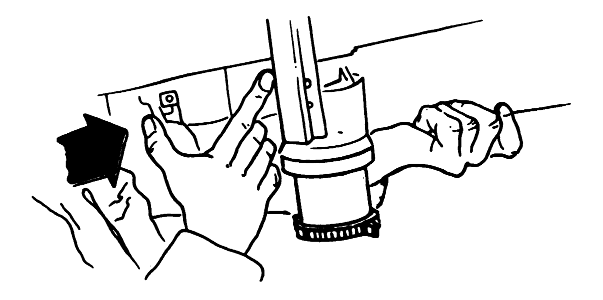


Figure 2-2. Trainer operating instructions (Sheet 2 of 8).





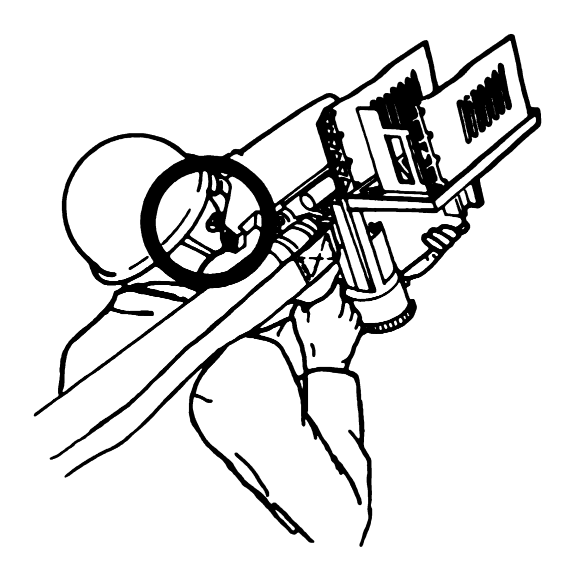
8 AIM TRAINER AT TARGET AND CENTER TARGET IN RANGE RING



9 PRESS IFF INTERROGATE SWITCH

MI419044A

Figure 2-2. Trainer operating instructions (Sheet 3 of 8).



10 LISTEN FOR IFF RESPONSE ....

A. "Beep—Quiet—Beep" meaning mode 4 friend
B. "Beeeeeeeeeep" meaning mode 3 friend
C. "Beep—Beep—Beep———" meaning unknown target

MI419045

Figure 2-2. Trainer operating instructions (Sheet 4 of 8).

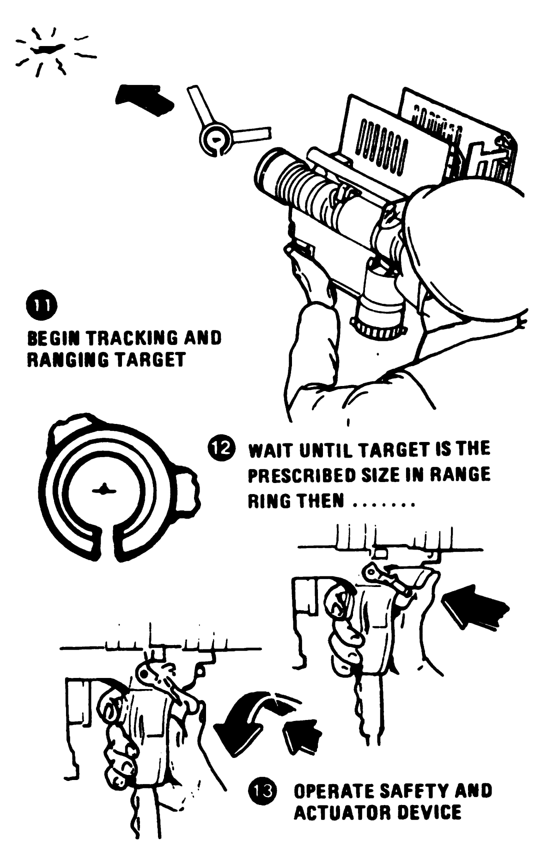


Figure 2-2. Trainer operating instructions (Sheet 5 of 8).

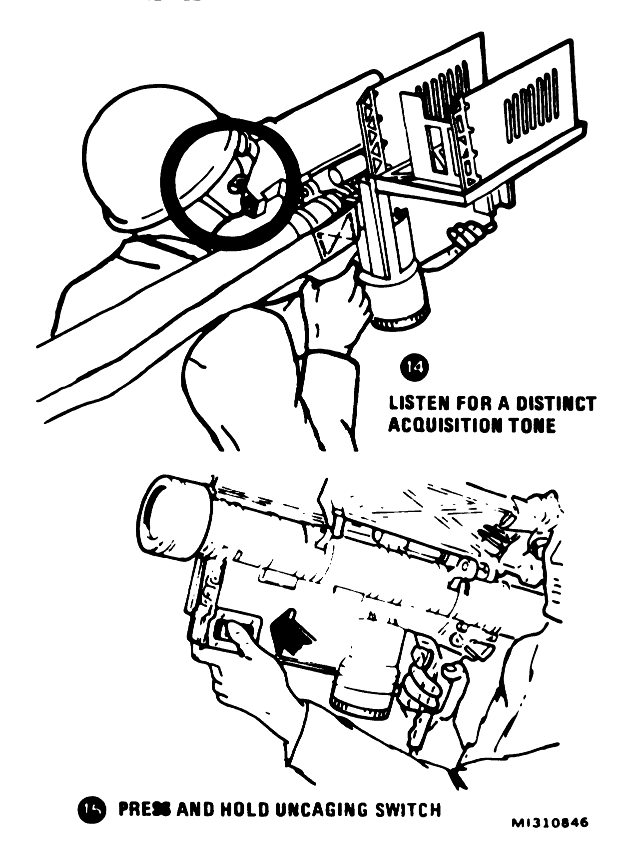


Figure 2-2. Trainer operating instructions (Sheet 6 of 8).

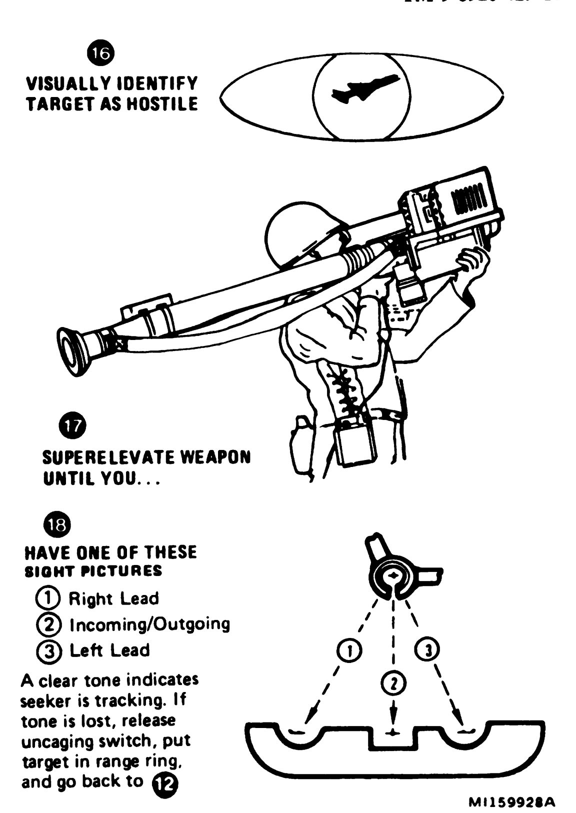
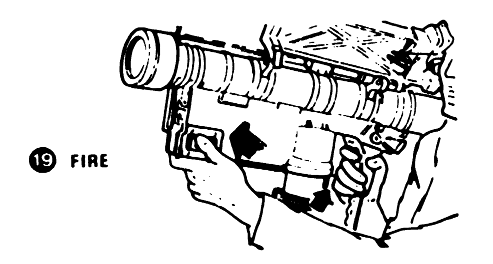


Figure 2-2. Trainer operating instructions (Sheet 7 of 8).



Holding uncaging switch, press and hold firing trigger and keep tracking target until beep is heard.

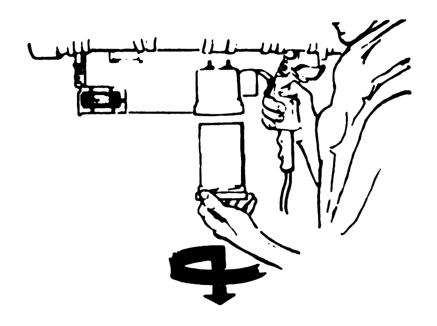


Figure 2-2. Trainer operating instructions (Sheet 8 of 8).

2-5. Post Operating Instructions

Prepare the trainer for storage by removing the battery, disconnecting the IFF cable and simulator, and installing the IFF connector cap, battery receptacle cap and front cover. Close the sight assembly. Fold antenna as shown in figure 2-3. Return the trainer, trainer batteries, and IFF simulator with cable to the shipping and storage container. Close container.

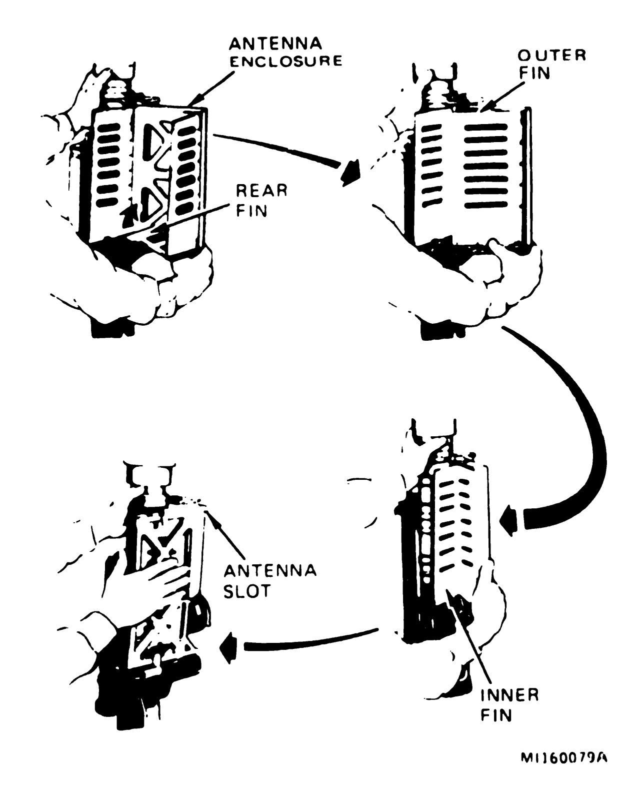


Figure 2-3. Folding antenna to stow position.

CHAPTER 3

MAINTENANCE INSTRUCTIONS FOR TRAINING SET

Section I. GENERAL MAINTENANCE INSTRUCTIONS

3-1. Repair Parts, Special Tools, Trouble Maintenance Diagnostic Equipment and Support Equipment

Repair parts and special tools are listed in TM 9-1425-429-24P. There is no TMDE or support equipment required for the Stinger Training Set.

3-2. Service Upon Receipt

Upon initial receipt and before use, inspect the trainer, the five trainer batteries, IFF simulator and interconnecting cable, and shipping and storage container for apparent damage.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

3-3. General

Preventive maintenance checks and services you are authorized to perform on STINGER training set items include the inspection, cleaning, painting, and replacement procedures in the following paragraphs.

3-4. General Cleaning Instructions

Clean the exterior of the items comprising the training set as necessary. If you cannot remove the dirt with a dry, clean cloth (Item No. 15, App. E) or brush (Item No. 16, App. E), wipe with a cloth moistened with water using general detergent (Item No. 2, App. E) (1 packet per 3 gallons of water). Remember to wipe the cleaned area thoroughly dry. Do not use water to clean connectors; use brush (Item No. 16, App. E). Do not use soapy water on the IR window surface.

3-5. Special Cleaning of IR Window

Use lens cleaning tissue (Item No. 4, App. E) to clean the optical surface of the IR window. To remove oil or grease, apply the optical cleaning compound (Item No. 3, App. E) sparingly with the lens cleaning tissue. Wipe the cleaned area thoroughly dry.

3-6. General Painting Instructions

CAUTION

- Enamel paint and wash primer (App. E, Item No. 14) will damage plastic material, such as the sight and gripstock, and therefore must not come in contact with them. Touch up only metal surfaces and the fiberglass launch tube.

- *DO NOT* paint the front window of the launch tube, cover, safety and actuator device, battery receptacle, IFF simulator connector, identification plates, IFF antenna or any of the rubber boots.

a. The trainer, five trainer batteries, IFF simulator, and shipping and storage container will be touched up if damaged. The paint colors shall be in accordance with Table 3-1.

b. Lightly sand the areas to be painted using fine grit sandpaper (Item No. 11, App. E). Clean with a soft cloth (Item No. 15, App. E) to remove sanding dust. Prime aluminum surfaces with wash primer (Item No. 14, App. E). Allow to dry and paint with the specified color. Launch tube does not require primer.

Table 3-1. Training Set Painting and Marking Color Identification

Nomenclature	Basic Color	Identification Markings (1-inch square)	Data Marking	2-1/2-inch Color Squares
Tracking Head Trainer	Olive Drab	Bronze	White	
IFF Simulator	Olive Drab			
Trainer Battery	Olive Drab			
Shipping and Storage Container	Forest Green		White	Bronze

3-7. Preventive Maintenance Checks and Services (PMCS)

a. At the specified intervals, the applicable PMCS listed in Table 3-2 will be performed. The specified checks represent the minimum number of essential checks. Before you begin the PMCS, keep in mind the following general information which is as important as the specific checks.

(1) Before you operate, always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) operation PMCS.

(2) After you operate, be sure to perform your after (A) PMCS.

(3) Perform your monthly (M) PMCS.

(4) Other services and checks that must be provided during power on are listed in operational procedures as required.

(b) Inspection is necessary to see if items are in good condition, correctly assembled or stored, secured, and not excessively worn or corroded. Any or all of these checks that are pertinent to any item (including supporting, attaching, or connecting members) will be performed automatically as a general procedure in addition to any specific procedure given.

(1) Inspection for good conditions.

- Visual inspection for damage beyond safe or serviceable limits. Includes check of flexible materials for hardness, cracks, or breaks.

(2) Inspection for correct assembly and storage.

- Visual inspection for improperly assembled or stowed items.

(3) Inspection for security

- Visual inspection or check by hand, for looseness.

(4) Inspection for wear or corrosion

• Visual inspection or check by hand for item worn or corroded beyond serviceable limits. Also applicable to markings, data, caution plates and printed matter that is legible.

NOTE

Where the instruction "tighten" appears in the procedure, it means tighten with the proper tool, even if the item appears to be secure.

c. Column Entries Used in PMCS

(1) Column 1, Item No. Column 1 numbers the checks and services to be performed in chronological order. This column will also be used as a source of item numbers for the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance worksheet, in recording results of PMCS.

(2) Column 2, Interval. Column 2 specifies the intervals at which the PMCS will be performed.

(3) Column 3, Malfunction test or Inspection. Column 3 provides the procedures for performing equipment inspection.

(4) Column 4. Column 4 contains the corrective action procedures.

Table 3-2. Preventive Maintenance Checks and Services—Training Set

B – BEFORE OPERATION　　A – AFTER OPERATION
D – DURING　　M – MONTHLY

ITEM NO.	INTERVAL B	D	A	M	MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
					TRAINER **WARNING** High gas pressure (up to 6200 psi) is used in the operation of the trainer. Death or severe injury may result if you fail to observe safety precautions.	

MI419047

Table 3-2. Preventive Maintenance Checks and Services—Training Set (Continued)

B – BEFORE OPERATION A – AFTER OPERATION
D – DURING M – MONTHLY

ITEM NO.	INTERVAL B	D	A	M	MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
1	●				Check launch tube for visible damage.	Return through normal supply channels.
2			●		Check front cover for snug fit; it must be easy to remove, but not loose enough to fall off. Also, inspect cover for breakage.	Replace if necessary.

MI413048A

Table 3-2. Preventive Maintenance Checks and Services—Training Set (Continued)

B – BEFORE OPERATION A – AFTER OPERATION
D – DURING M – MONTHLY

ITEM NO.	INTERVAL B	D	A	M	MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
					(illustration: 1, 2, 3, 4)	
3	●				Inspect IR window (1) for cleanliness.	Clean (par. 3-5)
4	●				Inspection IR window (1) for breakage or scratches, and nylon ring (2) for damage.	Return trainer through normal supply channels.
5	●				Inspect protective shock ring (3) and rear window (4) for evidence of damage.	Return trainer through normal supply channels.

MI419049A

Table 3-2. Preventive Maintenance Checks and Services—Training Set (Continued)

B – BEFORE OPERATION　　A – AFTER OPERATION
D – DURING　　M – MONTHLY

ITEM NO.	INTERVAL B	D	A	M	MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
6		●			Inspect range ring (9) and rear sight reticle (6) for damage or looseness.	
7		●			Check acquisition indicators (7) and wiring for visible damage.	Return the trainer through normal supply channels.
7.1				●	Check logbook to insure that the trainer gas reservoir has been visually inspected within the last 2 years ± 3 months.	If gas reservoir has not been inspected in the last 2 years ±3 months, return through normal supply channels.

MI419050A

Table 3-2. Preventive Maintenance Checks and Services—Training Set (Continued)

B – BEFORE OPERATION A – AFTER OPERATION
D – DURING M – MONTHLY

ITEM NO.	INTERVAL				MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
	B	D	A	M		
8				●	Check data on decal (8) to insure that trainer does not exceed proof test interval (5 years)	If expiration date is exceeded return through normal supply channels.
9	●				Take each battery out of the styrofoam container and check the contact rings (9) for cuts, dents, burn marks, and other damage.	Turn in through normal supply channels.

9

MI419051A

Section III. CORRECTIVE MAINTENANCE PROCEDURES

3-8. General

Troubleshooting of the trainer is accomplished during performance of OPERATIONAL CHECK PROCEDURE, paragraph 2-2. If any further maintenance is required, return training set through normal supply channels.

3-9. Replacement of Trainer Parts

a. General. The parts that you can replace on the trainer are shown in figure 3-1.

b. Sling Replacement. Using TL-29 knife, remove sling pin clip and withdraw pin. Remove other pin by repeating procedure. Install replacement.

c. Eyeshield Replacement. Remove defective eyeshield by gently peeling rubber mounting piece off of eyeshield buttons. Install replacement pressing eyeshield buttons into rubber mounting.

d. Boot Replacement. Using the screwdriver provided with the replacement boots, remove and replace defective boots. Tighten screws.

e. Protective Cap Replacement on IFF Simulator. The part that you can replace on the IFF simulator is the protective cap (with chain) covering the electrical connector. To replace, remove the damaged cap/chain assembly from its mount and install replacement.

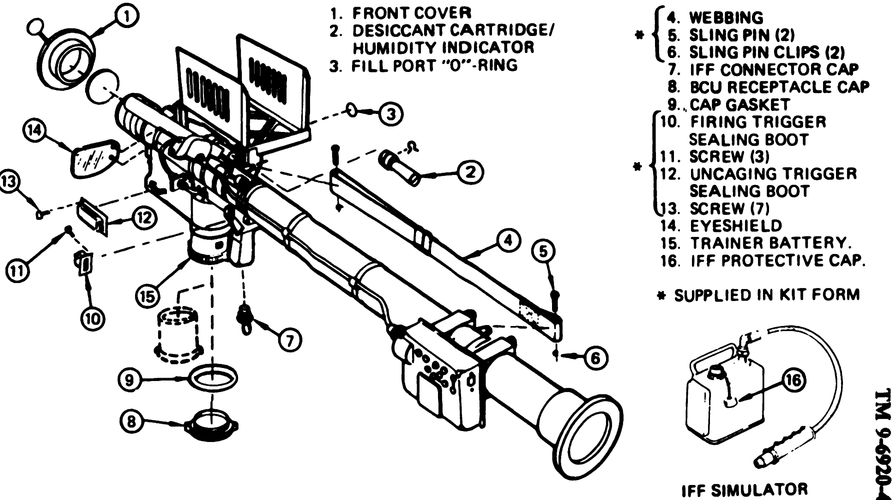


Figure 3-1. Trainer parts replacement.

CHAPTER 4

SHIPMENT, STORAGE, AND DESTRUCTION TO PREVENT ENEMY USE

4-1. Shipment and Storage

Use the shipping and storage container for extended storage or shipping of the trainer set. On the trainer, make sure the sight is lowered, antenna folded, receptacle cap is installed on the battery receptacle, front cover is in place and IFF connector cover is installed. Store the five batteries and IFF simulator in the trainer storage container.

4-2. Destruction to Prevent Enemy Use

a. General

(1) Destruction of the trainer seeker to prevent enemy use, will be undertaken by the user, when, in the judgement of the unit commander, such action is necessary in accordance with orders of, or policy established by, the Army Commander.

(2) Procedures for destruction of the Stinger trainer are identical to the tactical weapon destruction procedures described in TM 9-1425-429-12.

APPENDIX A

REFERENCES

1. Publication Indexes

The following indexes should be consulted frequently for the latest changes or revisions of references given in this appendix and for new publications relating to material covered in this technical manual.

Military Publications:
- Index of Supply Catalog and Supply Manuals .... DA Pam 310-6
- Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, Lubrication Orders .... DA Pam 310-4
- Modification Work Orders .... DA Pam 310-7

2. Forms and Records

- Equipment Control Record .... DA Form 2408-9
- Equipment Inspection & Maintenance Worksheet .... DA Form 2404
- Exchange Tag .... DA Form 2402
- Maintenance Request .... DA Form 2407
- Recommended Changes to DA Technical Manual, Parts List or Supply Manual 7, 8, or 9 .... DA Form 2028
- Quality Deficiency Report .... SF 368

3. Miscellaneous Publications

The Army Maintenance Management Systems (TAMMS) .... TM 38-750
Guided Missile Systems: Corrosion Control and Treatment .... TB 9-337
Inspection and Test of Air and Other Gas Compressors .... TB 742-93-1
STINGER Guided Missile System .... FM 44-18

4. Technical Manuals

Operator's and Organizational Maintenance Manual: Intercept-Aerial Guided Missile System TM9-1425-429-12
Operators and Organizational, Direct Support, and General Support: Recharging Unit Coolant, Training Set Guided Missile System M80; Battery Charger PP-3709-(X0-1)/T .... TM 9-6920-430-14
Organization, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for STINGER Air Defense System ..... TM 9-1425-429-24P

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance functions

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equiment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services[2] or other maintenance actions[3] to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/components.

B-3. Explanation of Columns in the MAC, Section II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation

chart. The symbol designations for the various maintenance categories are as follows:

C . . . . Operator or crew.
O . . . . Organizational maintenance.
F . . . . Direct support maintenance.
H . . . . General support maintenance.
D . . . . Depot maintenance.

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section III.

a. Column 2, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National stock number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part-number.

B-5. Explanation of Columns in Remarks,Section IV.

a. Column 1, Reference Code. The code recorded in column 5, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART FOR TRAINING SET, GUIDED MISSILE SYSTEM M-34

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Eqpt.
			C	O	F	H	D	
0500	Tracking Head Trainer	Inspect	0.4					A
		Service	0.3		0.6			BC
		Repair	0.3					1

Section III. TOOLS AND EQUIPMENT REQUIREMENTS FOR TRAINING SET, GUIDED MISSILE SYSTEM M/34

Tool or Test Equipment Ref Code	Maintenance Category	Nomenclature	National Stock Number	Tool Number
1	O	Tool Kit Signal TE-33	5180-00-408-1859	

Section IV. REMARKS

Reference Code	Remark
A	Inspection consists of visual inspection only.
B	Service at crew level consists of cleaning and touch-up painting.
C	Service at field level consists of recharging the trainer gas bottle with Argon gas.

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

There are no components of end items or basic issue items for the STINGER Training Set M134.

APPENDIX D

ADDITIONAL AUTHORIZATION LIST

There are no additional authorized items applicable to the STINGER Training Set M134.

APPENDIX E

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the STINGER Training Set M134. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

2. Explanation of Columns

a. Column 1 — Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, Item 5, App. E").

b. Column 2 — Level. This column identifies the lowest level of maintenance (C - Operator/Crew) that requires the listed item.

c. Column 3 — National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. Column 4 — Description. Indicates the Federal Item Name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column 5 — Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	C	8020-00-224-8024	Artist Brush	EA
2	C	7930-00-093-4909	Detergent	PZ
3	C	6850-00-392-9751	Optical Cleaning Compound	BT
4	C	6640-00-559-1384	Lens Tissue	PG
5	O	7510-00-266-6714	Masking Tape	RO
6	O	7510-00-290-2023	Masking Tape	RO
7	O	8010-01-049-6424	Paint, #35109, Blue	QT
8	O	8010-00-297-0568	Paint, #37875, White	GL
9	O	8010-00-221-6455	Paint, #34087, Green (Olive Drab)	KT
10	O	8010-00-514-1861	Paint Primer	PT
11	O	5350-00-174-0998	Sandpaper (280 Grit)	BD
12	O	8010-00-181-8079	Thinner Solvent	GL
13	O	8020-00-260-1306	Varnish Brush	EA
14	O	8030-00-535-9780	Wash Primer	KT
15	C	8305-00-205-3496	Wiping Rags	PG
16	O	7920-00-514-2417	Brush, Acid Swabbing	GR
17	C	5180-00-408-1859	Tool Kit, General Purpose	EA

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-32 Section II, Organizational Maintenance requirements for STINGER Air Defense Guided Missile System.

☆ U.S. G.P.O. 1984-746-036:3332

J